

disk as well as for tracking servo. A light spot 24 as a tracking servo light spot is required to have a uniform intensity over the whole area of the spot. However, as shown in Fig. 6A, the intensity distribution of light incident upon the non-diffraction hologram pattern 14 of the hologram module 13 from the real laser light source 11 has a mountain shape with an apex at its center. This intensity distribution can be improved by using a phase hologram pattern. Namely, the deeper the groove of a phase hologram pattern, the more the amount of non-diffraction light (0-th order light) can be reduced and the more the diffraction light amount can be increased by using the reduced amount of non-diffraction light as the diffraction light. Further, the more the width of a valley (groove) is made equal to the width of a hill (non-groove), the more the amount of 0-th order light can be reduced and the more the diffraction light amount can be increased by using the reduced amount as the diffraction light. As shown in Fig. 6B, the depth of the groove 54 is made smaller at the position remoter from the optical axis center to thereby reduce the amount of 0-th order light and direct the reduced amount of light toward different directions. Instead of adjusting the depths of grooves 54, the depths of grooves 54 may be made equal and the ratio of each non-groove width to a total width of each pair of adjacent groove 54 and non-groove is set as $a_1 > a_2 > a_3 > a_4 > a_5 > a_6 > \dots, . a_n$, where $a_1, a_2, a_3, a_4, a_5, a_6, \dots, a_n$ are ratios at positions from a near position to the optical axis center to a far position therefrom in this order.

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In the above manners, as shown in Fig. 6C, the light intensity distribution can be made uniform in some range about the optical axis center in a radial direction. By using the non-diffraction hologram pattern 14 having grooves 54 such as shown in Fig. 6B, the intensity distribution of incident light can be made flat. If a tracking servo signal is generated from reflected light of a light spot formed by such uniform intensity light, this tracking servo signal is stable even if the objective lens is subject to a tracking shift.

IN THE CLAIMS:

Please cancel claims 1, 2, 6-10 and 14-16 without prejudice or disclaimer to the subject matter recited therein.

Please amend claims 3-5, 11-13, 17 and 19 as follows. Please note the claims are further presented as an attachment to the Amendment, where the amendments are shown using the conventional method of bracketing and underlining.

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3. (Amended) An optical pickup device comprising:
a single real laser light source;
a hologram member for diffracting light emitted from said real laser light source to form at least one imaginary laser light source; and
a light spot forming optical element for receiving light from said hologram member and forming a plurality of light spots on tracks of a recording medium.

Wherein hologram patterns of said hologram member are determined so that diffraction light is given an inverse aberration of an aberration to be caused by optical elements in an optical path from said real laser light source to the recording medium, and the hologram pattern for diffraction corresponding to each imaginary laser light source is